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Inventor: N/A

Applicant: Roger Piot

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### SEALED JOINT FOR DOUBLE GLAZING UNIT

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The present invention relates to double glazing units for the purpose of thermal and sound insulation of glazing panels.

It is known that glazing units having double glazed panels are made of at least two glazing elements which are separated by spacers and supported by frames that extend to the periphery and limit, with the help of a sealed joint, a sealed intermediate space which is filled with dry air.

Such glazing units may be manufactured in a factory and are usually framed by two metal sections, with the sealed joint consisting of pastes or polymerized resinous plastics to ensure a dependable seal.

Other double glazing units are made by adding at least one additional glazing panel on a first existing glazing panel with the aid of an inserted section which must be fixed to the frame of the first glazing panel and which allows to compress a sealed plastic joint between the additional glazing panel and the frame or the periphery of the first glazing panel itself.

In both cases, the sealed joint delimits the sealed space which is filled with dry air and comprises, at least localized, a desiccant which is in contact with the entrapped dry air.

The first type of glazing panels delivers good results with respect to thermal and sound insulation but they are only suitable for window frames whose rabbets are sufficiently deep, i.e., in practice, these are frames especially designed for this type of usage.

Glazing units of the aforementioned second type are suitable for any type of frame, but in order to be installed they require the sections and joints to be cut, fastening means which result in long and not-so-easy operations, and they are relatively expensive. Moreover, the results are not satisfactory unless the sections are non-deformable, and this results in large dimensions and multiple attachment points.

It is the object of the invention to provide means for manufacturing multiple glazing units, which are reliable, inexpensive, and easy to install.

Another goal of the invention is to provide a process for insulating glazed panels.

The object of the invention is a sealed joint used in the construction of multiple glazed panels, especially one based on a simple glazing pane, characterized in that said joint comprises a sealed elastic core in the form of a strip having a square cross section whose two opposite faces are coated, at least localized, with an adhesive contact substance, with said core also comprising desiccation agents.

In the glazing unit according to the invention, the glazed elements are kept at a desired interval by means of the inventive sealed joint, which simultaneously serve as

spacers and attachment means, and which also ensure the desiccation of the blanket of air enclosed therein.

The thermal and sound insulation process for the inventive glazing panels is characterized in that a sealed joint is applied to the periphery of a first glazing panel, with the desiccant being oriented toward the center of the glazing panel, and in that the additional glazing panel is applied after the air, which constitutes the pocket of entrapped air, is heated.

Another object of the invention is to realize a glazing panel with the aid of a sealed joint in accordance with the invention.

An embodiment of the invention is described below and illustrated in the drawing in which:

- Figure 1 is a schematic cross-sectional view of the right section of a joint in accordance with the invention;
- Figure 2 is a view of a variant of the embodiment;
- Figures 3a and 3b are views of other variants of the embodiment;
- Figure 4 is a partial schematic view of a multiple glazed panel in accordance with the invention;
- Figure 5a is a view of another variant of the joint;
- Figure 5b is a partial schematic view of a multiple glazed panel made with the joint in Figure 5a.

In Figure 1, the sealed joint in accordance with the invention is made of a central, flexible core such as rubber, polyvinyl polyethylene, polyurethane or any other suitable closed-cell material. The core is made of an elastic strip having a square cross section,

and the opposite faces 2 and 3 are coated with a layer of a non-hygrometric adhesive substance such as an acrylic elastomer, silicone, or any other type of adhesive 4 having the properties required of a contact adhesive - the dimension L determines the spacing of the two glazing panels, for example, 6 mm - with the face 6 of the central core 1 adjacent to faces 2 and 3 being covered with a desiccant 7, which may be a product known by the name of silicagel - with the adhesive layer 4 of the face 2 being covered with a removable protective film.

The joint is normally rolled up onto itself in order to form a roll of a predetermined length, which is preferably vacuum wrapped for storage and for commerce.

In accordance with Figure 2, the central core 1 of the sealed joint is, for example, polyethylene. It comprises a longitudinal recess, which communicates with face 6 adjacent to two adhesive faces 2 and 3 by way of small openings 10 which are spaced at regular intervals along the joint. The desiccant 7 is contained on the inside of the recess 9. In the variant, the face 11 adjacent to the two adhesive faces 2 and 3 and opposite face 6, is also equipped with a layer of an adhesive 4 - with the adhesive layers of at least one of faces 2 and 3 and that of face 11 being coated with a removable protective film, which is not illustrated.

One embodiment of the invention, illustrated in Figure 3a, provides for the central core to be extended by a side edge 12 which forms a cover strip for the additional glazing panel illustrated by the dashed line. In order to simplify the manufacturing process, the edge is deformable, Figure 3b.

The adhesive face 2 of the joint is applied in accordance with Figure 4 on the periphery of the first glazing panel 13 arranged in the direct vicinity of the frame. The natural flexibility of the joint allows directional changes to be made in the corners of the glazing panel. However, it may be preferable to cut and glue the portions to be joined in order to ensure the continuity of the joint.

The process is the following: the additional glazing panel 14 is placed with its lower side on the face 3 of the sealed joint, and with its upper portion it is brought into the proximity of the face of the opposite joint. Prior to placing the entire additional glazing panel, hot air is blown into the intermediate space separating the two glazing elements until the temperature rises. Then the additional glazing panel is placed squarely on the entire surface of the sealed joint. Cooling the dry air entrapped in the intermediate space separates the two glazing panels and results in low pressure, which favors good adhesion. An annular molding 15 may be added.

A variant of the invention illustrated in Figure 5a provides for a thin sealed joint - the central core 1 is thin, the face 2 is coated with an adhesive substance along two side strips  $2_1$  and  $2_2$ , with each occupying approximately one third of the thickness - face 3 is completely covered with adhesive substance - the desiccant 7 is arranged in accordance with a central strip 23.

This embodiment allows constructing a multiple glazing unit, Figure 5b, by being placed on a frame comprising a spline 16, which forms a spacer for the glazing panel.

It will be understood that the invention may be made in different colors and dimensions:

## CLAIMS

1. Sealed joint for making a multiple glazing unit, characterized in that said joint comprises a watertight elastic core in the form of a strip having a square cross section whose two opposite faces are coated, at least localized, with an adhesive substance, with said core also comprising a desiccant.

2. Sealed joint as defined in claim 1, characterized in that the desiccation means are a layer of desiccant arranged on an surface adjacent to the adhesive faces.

3. Joint as defined in Claim 1, characterized in that the desiccation means are a longitudinal strip of desiccating material arranged in the center portion of one of the two adhesive faces.

4. Joint as defined in Claim 1, characterized in that the desiccation means are a desiccating material contained on the inside of a recess arranged in the core which communicates with the face adjacent to two adhesive faces by way of small openings.

5. Joint as defined in one of the preceding claims, characterized in that said joint comprises a side edge.

6. Joint as defined in one of the preceding claims, characterized in that said edge is deformable.

7. Thermal and sound insulation of a glazing unit, characterized in that a sealed joint as defined in one of claims 1 to 6 is placed on the periphery of a first glazing panel, with the desiccation means being oriented toward the center of the glazing panel, and in that an additional glazing panel is applied after having been heated with air that constitutes the pocket of entrapped air.

8. Multiple glazing unit comprises at least two glazing elements separated by an intermediate space which is filled with dry air, characterized in that the glazing elements are affixed through contact with a sealed joint as defined in one of Claims 1 to 6.

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Martha Witebsky - Technical Translator  
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